

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 06067018
PUBLICATION DATE : 11-03-94

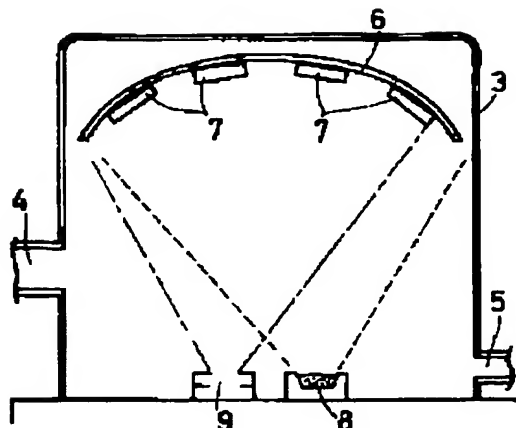
APPLICATION DATE : 19-08-92
APPLICATION NUMBER : 04220320

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INT.CL. : G02B 5/28

TITLE : PRODUCTION OF THIN-FILM OPTICAL
FILTER



ABSTRACT : **PURPOSE:** To obviate the generation of the warpage and crack occurring due to internal stresses by laminating and forming thin films on substrate surfaces by an ion assisted vapor deposition method for depositing a thin film forming material by evaporation on the substrate surfaces while projecting the gaseous ions from an ion source to these surfaces.

CONSTITUTION: Gaseous O_2 is admitted into a vacuum chamber 3 from a gas inflow port 5 and a specified pressure is maintained in this chamber by continuing the evacuation with a vacuum pump. SiO_2 which is a vapor deposition source 8 is heated in this state with an electron beam and the evaporated SiO_2 is released into the vacuum chamber 3. Simultaneously with this release, O^+ which is the ion source 9, is projected with acceleration current toward the glass substrates 7. The thin-film layers consisting of the SiO_2 released from the vapor deposition source 8 are formed on the surfaces of the substrates 7. The vapor deposition source 8 is then changed with TiO_2 and a stage similar to the above-mentioned stage is executed, by that, the thin-film layers are freshly formed. The optical band-pass filter of 7-layered structures formed by laminating the SiO_2 layers (low-refractive index layers) and the TiO_2 layers (high-refractive index layers) on the glass substrates 7 is produced by alternately repeating the above-mentioned stages.

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